



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,677	12/17/2003	Yun Bok Lee	8733.977.00-US	4107

7590 12/29/2004
Song K. Jung
MCKENNA LONG & ALDRIDGE LLP
1900 K Street, N.W.
Washington, DC 20006

EXAMINER

FERNANDEZ, KALIMAH

ART UNIT	PAPER NUMBER
----------	--------------

2881

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/736,677

Applicant(s)

LEE ET AL.

Examiner

Kalimah Fernandez

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat No. 5,814,194 issued to Deguchi et al and in view of US Pat No 6,238,582 issued to Williams et al.
3. Deguchi et al disclose the claimed invention except for the ion beam irradiates the substrate at the recited angle ranges.
4. However, Williams et al teach the desirability of varying the irradiation angle (see fig.1; col.2, lines 26-40; col. 3, lines 45-47; col.8, lines 38-50).
5. It would have been obvious to an artisan having ordinary skill at the time of the invention to incorporate the teachings of Williams et al into Deguchi et al since Williams et al teach increased reliability and reproductivity (col.3, lines 45-47).
6. As per claim 2, Deguchi et al disclose an ionizer (15); a discharger (11); and an accelerator (18).

7. As per claims 3-5, Deguchi et al disclose the accelerator, the ionizer and the discharger being substantially parallel with the substrate (see fig. 1).

8. As per claim 6, Deguchi et al disclose the ionizer (15) inclined at an angle substantially different from the accelerator and discharger (see fig.1).

9. As per claim 7, Deguchi et al disclose the substrate having an alignment layer (24) (col.6, lines 14-19).

10. As per claim 8, Deguchi et al disclose the ion beam is formed from an inert gas Ar (col.3, lines 64-66).

11. As per claims 9-10, Deguchi et al disclose the ion beam is discharged from the ion source at an angle with respect to a direction normal to the ion beam source and the angle is identical to an incline angle of the substrate (see fig. 1).

12. As per claim 14, Deguchi et al disclose supporting a substrate with an alignment layer (24) at a first angle and producing ion beams to irradiate the whole substrate with ions (see col.3, lines 7-36).

13. As per claim 15, Deguchi et al disclose ionizing an injected gas into ions and electrons (col.4, lines 4-5; col.5, lines 13-29); discharging the ions

as the ion beams via discharger (11); and accelerating the discharged ion beams towards the substrate (col.4, lines 5-7).

14. As per claim 16, Deguchi et al disclose the injected gas is Ar (col.3, lines 64-66).

Response to Arguments

15. Applicant's arguments filed 9-29-04 have been fully considered but they are not persuasive. Applicant argues Deguchi fails to teach discloses a beam ion path with an incidence angle greater than 0.

16. The present-amendment has been rejected based on the combination of Deguchi et al and Williams. Applicant does not address the previous rejection of claims 11-13 and 17-19. In response to Applicant's piecemeal analysis of the references, it has been held that one cannot show non-obviousness by attacking references individually where, as here, the rejections are based on combinations of references. *In re Keller*, 208 USPQ 871 (CCPA 1981).

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 5,753,923 issued to Mera et al; US

Pat No. 4,634,931 issued to Taya et al; and US Pat No. 5,086,015 issued to Itoh et al are considered relevant to the claimed invention.

18. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

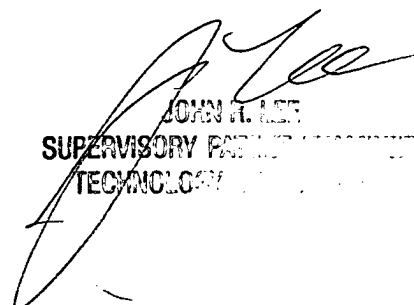
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kalimah Fernandez whose telephone number is 571-272-2470. The examiner can normally be reached on Mon-Tues 6:30-3:30; Wed-Thurs 8-5 and Fri.9am-6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R Lee can be reached on 571-272-2477. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KF


JOHN R. LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY